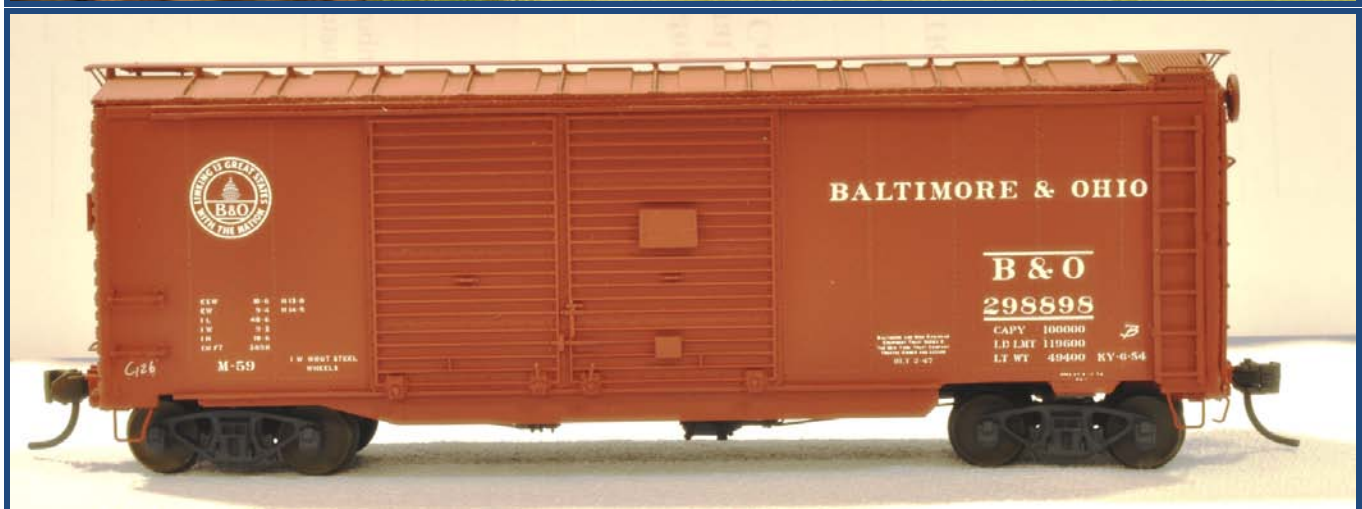




THE B&O MODELER

Volume 6, Number 1

January/February 2010



WRIGHTTRAK MODELS HO SCALE M-53/53A BOXCAR MODELING B&O CONCRETE TUNNEL PORTALS 2009 CONVENTION MODEL PHOTOGRAPHS

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Cover Photos – Top, M-53 Boxcar– William Hanley photo. Bottom, M-59 Boxcar – John Teichmoeller photo.

AN INVITATION TO JOIN THE B&O RAILROAD HISTORICAL SOCIETY

The Baltimore and Ohio Railroad Historical Society is an independent non-profit educational corporation. The Society's purpose is to foster interest, research, preservation, and the distribution of information concerning the B&O. Its membership is spread throughout the United States and numerous foreign countries, and its scope includes all facets of the B&O's history. Currently the Society has over 1600 registered members.

Members regularly receive a variety of publications offering news, comments, technical information, and in-depth coverage of the B&O and its related companies. Since 1979, the Society has published a quarterly magazine, *The Sentinel*, dedicated to the publication of articles and news items of historical significance. Other Society publications include monographs, calendars, equipment rosters, and reprints of original B&O source material. Their

purpose is to make otherwise unobtainable data available to the membership at reasonable cost.

Membership in the Society is a vote of support and makes all of the Society's work possible. It provides those interested in the B&O with a legitimate, respected voice in the railroad and historical communities. By working together, B&O fans are able to accomplish much more than by individual efforts. No matter how diverse your interests or how arcane your specialty, others share your fascination with America's most historic railroad. We invite your participation. Several classes of annual memberships are available, Regular memberships are only \$35.00. If you would like to join, visit the website, <http://borhs.org/Membership/membership.html> to fill out a membership application, print a copy and mail it to:

**B&ORRHS
ATTN: Membership
P.O. Box 24068
Baltimore, MD 21227-0568**

FROM THE EDITOR

Thanks for a Great Future and a Great Past

I am writing this in between writing my dissertation proposal and a statistics class assignment, late on a Friday night. A little over five years ago I started a PhD program in Higher Education Leadership, a role I have been in for the past 17 years. While starting

down this new path, I was also struck by the great concept that is the one of a kind Keystone Modeler. I guess I knew I needed a challenge in my life and for some reason I decided to take on two at the same time. With a great deal of help from Al Buchan and others from the PRRT&HS, I learned how they were

able to start their awesome modeling magazine. It was exciting to be trying something new, in a new media, and do something to assist the BORRHS in its mission of preserving B&O history.

It has not been easy to juggle both new paths and still hopefully be a good part of my wife's and son's lives. The help I have gotten from authors and most importantly Greg LaRocca, Ben Hom, and other magazine staff members and volunteers cannot be understated. At best I have been an average leader of this effort, not meeting firm deadlines, nor communicating needs in a timely manner. In fact, all the folks who have reviewed issues and provided feedback often got an email that asked them to drop everything and review the draft issue in two days and let me know any problems before I published it to the web at the end of the week. Sorry guys, but we all thank you.

Last year while getting close to completing my coursework and facing summer school classes to stay on track (I am still the EHS Director at UNCG), I faced the fact that maybe we did not have enough articles to continue (this was my fault as I did not have enough time to keep asking authors for articles). Not just continue at a rate of bimonthly issues, but continue at all. When I shared this with the B&O Yahoo Group, the response was inspiring, I think we have enough articles to get through our 5th anniversary issue in July. We even got a article submission from another B&O modeler in Germany.

This does not mean we are not actively seeking articles for publication; in fact our need is greater as we are trying to establish a more efficient editing

system that will allow us to publish at the beginning of the month consistently for the first time. While you are modeling through the winter months, please take some photos and work with us to share your efforts. I suspect sometimes readers wonder why we feature an article that is not in the mainstream of modeling. The reason is two-part, we strive to present different perspectives, but at times we publish the articles that we receive. If you lament that there are not articles about X (your favorite topic) it is probably because no one has submitted an article about the topic. That means it is up to you.

Enough sales pitch, the future looks very bright. This experience has been a great one for me. I have learned how to depend on others for help. I was the quintessential "lone wolf" modeler, now I feel like I am a part of a community that is always willing to help. Remember the article on making an HO Bachmann Consolidation look more B&O, it was written because I asked a friend to show me how he did it for his layout. As we move forward, we look forward to receiving your submissions and others that illustrate the variety of B&O modeler's interests.

My hopes are for a great future. I truly hope that anyone that was not happy with their experience as an author for the *B&O Modeler* will look past my faults and submit another article. I also hope that the many modelers who have enjoyed the experience will continue to share with the rest of us with new articles. Most importantly, I hope that those of you who have not written an article or submitted a picture will make a point of joining me and the community of sharing modelers that is the basis of the *B&O Modeler*.

NEWS FROM THE COMPANY STORE

BY CRAIG CLOSE

Contacting Company Store Manager: If you have a question or problem with a Company Store order, please send an e-mail message to storemanager@borhs.org. If you do not have e-mail, send to BORHS Store, PO Box 24225, Baltimore, MD 21227.

HO Scale

M-53/53a Boxcar Decals, Item #33601, B&O Railroad Historical Society, Post Office Box 24225, Baltimore, MD 21227. <http://www.borhs.org/Shopping/index.html> These decals are exclusive to the Historical Society and represent the best, most accurate B&O freight car decals to date. This is the same artwork developed for the WrightTrak kit. The sheet includes enough lettering to decal at least four cars in one of four schemes. If this product sells well, look for more exclusive decals from the Society. Proceeds from sales support the Society's Archives. Retail price is \$6.50.



Duane Carrell Model and Photograph.

MODEL PRODUCT NEWS

CLARK CONE

| Scale | Manufacturer | Product # | Description |
|-------|---------------|-----------|------------------------------|
| HO | Intermountain | 46520 | ACF Center Flow 2-Bay Hopper |



For more detail, see <http://www.imrcmodels.com/ho/html/46520.htm>

| Scale | Manufacturer | Product # | Description |
|-------|--------------|-----------|-------------------|
| HO | Tichy | T452916 | N-17 2-Bay Hopper |



Features finely molded details, wire grab irons, 13 Great States - 6 road numbers, metal wheel sets, and Kadee® couplers. For more information: <http://www.imrcmodels.com/flyer273.htm>

| Scale | Manufacturer | Product # | Description |
|-------|--------------|------------|--|
| N | Micro-trains | N 02000826 | M-55H, 40' Standard Box Car with Crate Load, #467004 |

For more information: http://www.modeltrainstuff.com/Micro_trains_Box_Car_Baltimore_and_Ohio_p/mtl-02000826.htm.

| Scale | Manufacturer | Product # | Description |
|-------|------------------|-----------|------------------|
| S | S-Helper Service | | 3-bay PS2 Hopper |

Two #s available. Like its smaller brother, these were built by the Pullman-Standard starting in 1953. They featured all welded construction and a unique, round weather tight roof hatch. Model features photoengraved metal running boards, die-cast metal, sprung and equalized trucks, formed metal grab irons, and complete AB brake system. For the B&O, the rib directly above the truck bolster is a channel-section on the model and should be a hat-shaped single rib. For more information, http://www.modeltrainstuff.com/product_p/she-1628.htm

| Scale | Manufacturer | Product # | Description |
|-------|--------------|-----------|----------------------------|
| O | MTH | 30-74486 | Time-Saver Service Box Car |

Features durable ABS body, metal wheels and axles, die-cast trucks, operating die-cast metal couplers, sliding car doors, measures: 11 1/2" x 2 3/8" x 2 5/16". For more information, http://www.modeltrainstuff.com/product_p/mth-3074486.htm

| Scale | Manufacturer | Product # | Description |
|-------|--------------|-----------------|---|
| O | Weaver | U18004LD-14426, | 3-Bay, 9-Panel Hopper , B&O/ Chessie #14426 |

Model equipped with die cast trucks and couplers; 1/4" scale dimensions, 3-rail, weighted car built from prototype blueprints. Approximate car dimensions: length 10", height 2", width 2". For more information: http://www.modeltrainstuff.com/product_p/wea-u18004ld-14426.htm

| Scale | Manufacturer | Product # | Description |
|-------|--------------------------|-------------|----------------------|
| O | Mullet River Model Works | Kit #403027 | B&O/BR&P Caboose Kit |

\$120.00 Less trucks, couplers and brake rigging

- K Brake Detail Kit #409001, add \$21.00
- AB Brake Detail Kit #409002, add \$25.00

To purchase the car, go to the web site www.mulletrivermodelworks.com for a list of dealers or send a check to Mullet River Model Works for the amount of purchase plus \$5.00 for shipping.

UPDATES AND ERRATA

2010 Ohio Mini Convention

Join us for a day of fellowship and renewed friendships, all with a healthy exchange of information on the side. As always, the Baltimore and Ohio Railroad Historical Society Company Store will be available at the mini-convention.

When: Saturday, May 15, 2010

Where: Lafayette United Methodist Church, 6201 Lafayette Road, Medina, Ohio. The church provides us with a large area for program presentations. There will also be several modular railroads operating during lunch and breaks. As always, the Baltimore and Ohio Railroad Historical Society Company Store will also be available.

Agenda:

Time Activity Presenter

8:00 a.m. Doors open

9:00 a.m. Railroad History of Medina County Stephen Hambley

9:30 a.m. Slide Presentation Bill Weinbroer

10:00 a.m. Passenger Trains Ralph Barger

11:30 a.m. The C&P Docks in Cleveland (Hulett's) Chip Syme

12:15 a.m. Lunch

1:15 p.m. Society President's Overview Robert Hubler

1:30 p.m. A Look into the Archives Nick Fry

1:45 p.m. B&O Flat Cars Bob Witt

2:30 p.m. The Stone Arches of Lodi Joe Warner

3:00 p.m. Slide Presentation Mark Demaline

4:00 p.m. Slide Presentation Stephen Salamon

5:00 p.m. Mini Convention Closes

Lunch:

An à la carte style lunch consisting of hamburgers, sloppy joes, hot dogs, coleslaw, chips, desserts and more will be available for purchase from the lunch counter of the church. The lunch is provided as a fundraiser for the women's group associated with the church. There are also several fast food style restaurants located in Medina and Lodi, both of which are within seven miles of the church, but because of time constraints, attendees are encouraged to consider purchasing their meal from the lunch counter. Coffee, doughnuts and soft drinks will be available all day for a donation to the women's group.

Miscellaneous:

Several tables will be available for display of your favorite models and memorabilia. Please note that items displayed are done so at your own risk and the B&ORRHS cannot be held responsible for damage or losses that may occur. Neither the B&ORHS nor the Lafayette United Methodist Church will be held responsible for any personal injuries that may occur traveling to, during the mini convention and/or returning from the miniconvention.

Lodging:

Red Roof Inn, 5021 Eastpointe Dr., Medina, OH. Phone: 330-725-1395

A special price of \$50.00 per room has been negotiated with The Red Roof Inn. This price does not including tax and/or additional room charges for phone calls, movies etc. When making your reservations please mention the **Baltimore and Ohio Historical Society** to receive this rate. There are a number of other facilities available in the same general area. Please check with them regarding availability and rates.

WRIGHTTRAK MODELS HO SCALE M-53/53A BOXCAR

BY: WILLIAM HANLEY

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



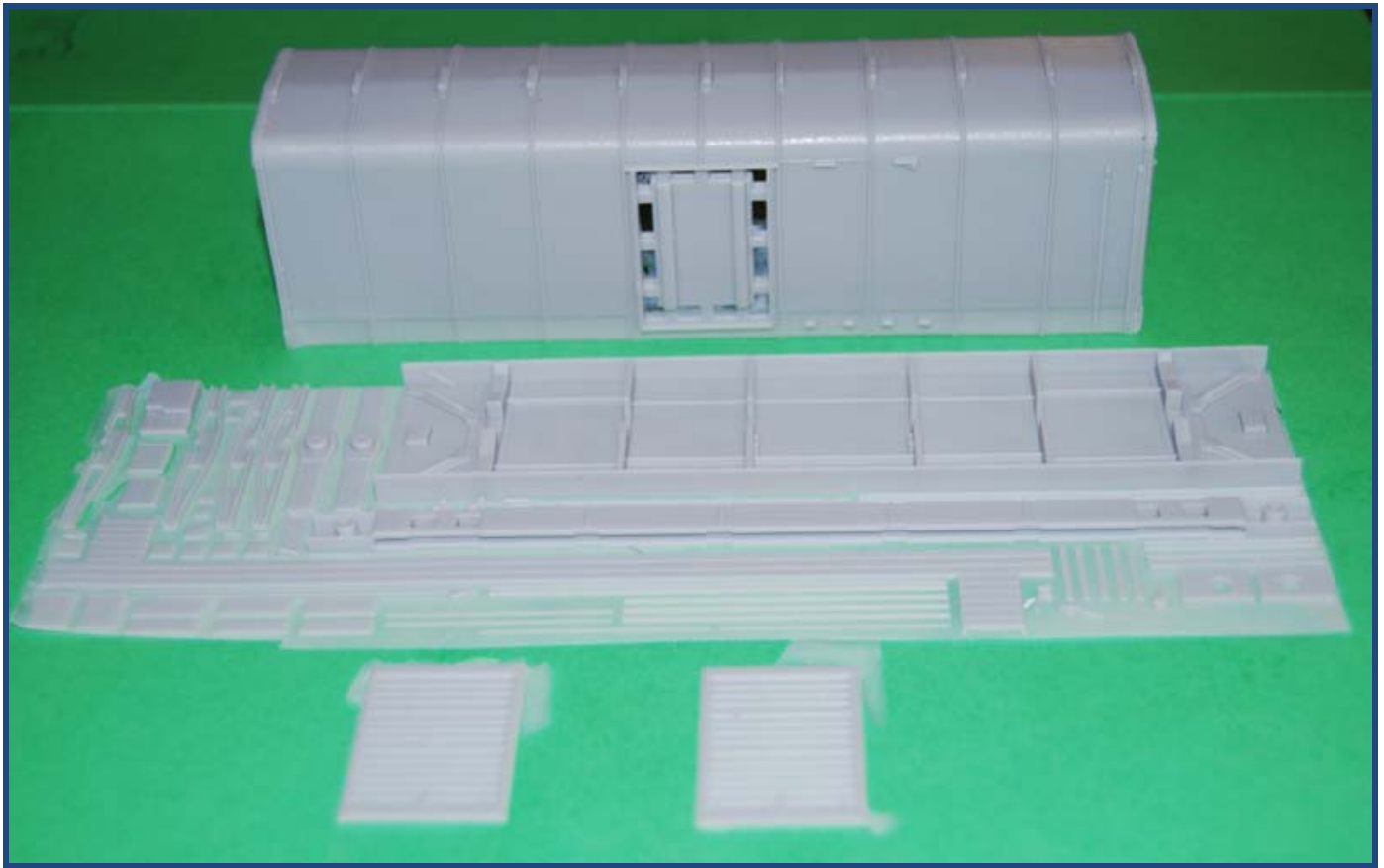
The Prototype

While not the most numerous of boxcars in the B&O fleet, the M-53 and M-53A class were the most distinctive and could be called the B&O's "signature" car. The B&O rostered 2000 of the class M-53 (380000 – 381999), and 1000 of the class M-53A (385000 -385999). The underframes were built by Bethlehem and the car bodies were assembled by the company shops in Keyser, WV; DuBois, PA; Chillicothe, OH; and Washington, IN beginning in 1937 and concluding in 1938. The class M-53A was built in 1941. Both classes featured the Duryea Underframe. The designs were nearly identical with the M-53A being 400 pounds heavier. There were minor rivet detail differences between the two classes. For more information, see "Railway Prototype Cyclopedia", Volume 9. Copies are available through the BORHS Company Store.

Prelude

Every so often, a kit comes on the market that is worth getting excited about. This is one of those kits! The one piece body is very crisp and requires very little cleaning up. The Duryea underbody is more detailed than any kit previously offered. You will

have to supply a number of items such as phosphor-bronze wire of varying dimensions, couplers, strip styrene, etc. A list of materials can be found at the conclusion of this article and while some of the items are provided, the list includes some of my personal preferences. I have also chosen to add air hoses and cut levers, which are not provided with the kit. The directions come in the form of a mini-CD which must be printed. Once printed, the directions provide a clear and precise route to completion of the kit with numerous in-process photos. The pdf format allows zooming in to see detail that retains clarity even with significant magnification. A separate folder on the CD contains stenciling arrangements from the BORHS archives and over 71 images, taken by John Cantley, of a single M-53 on display in a Parish, FL, museum. The kit can be ordered online by going to www.wrighttrak.com, from B&ORR HS Company Store (<http://www.borhs.org/Shopping/index.html>) or at select dealers. The retail price is \$49.95 plus shipping. Additionally, for those wishing to preview the directions, they can be downloaded and printed from the same website.



Preparation

We will begin by examining the contents of the kit and becoming familiar with the parts. Equally important is to become familiar with the kit's instructions. First, we'll prepare the underframe – separate and clean the floor, center sill, draft gear covers, four rectangular plates, eight square plates and the four triangular gussets, followed by sanding their edges smooth. Now would be a good time to choose between building an M-53 or M-53A. Along

the top of the carbody, you'll see two rows of rivets running lengthwise at the top of the car sides. If you chose to build an M-53, remove these rivets. Only the M-53A had them. There is also a rivet strip on the ends unique to the M-53A. We'll have more on that later on. Since I already had built a number of M-53s and it has been the only class offered, I opted to build this kit as an M-53A. To sum it up – this kit represents, for the first time, an M-53A.



Construction

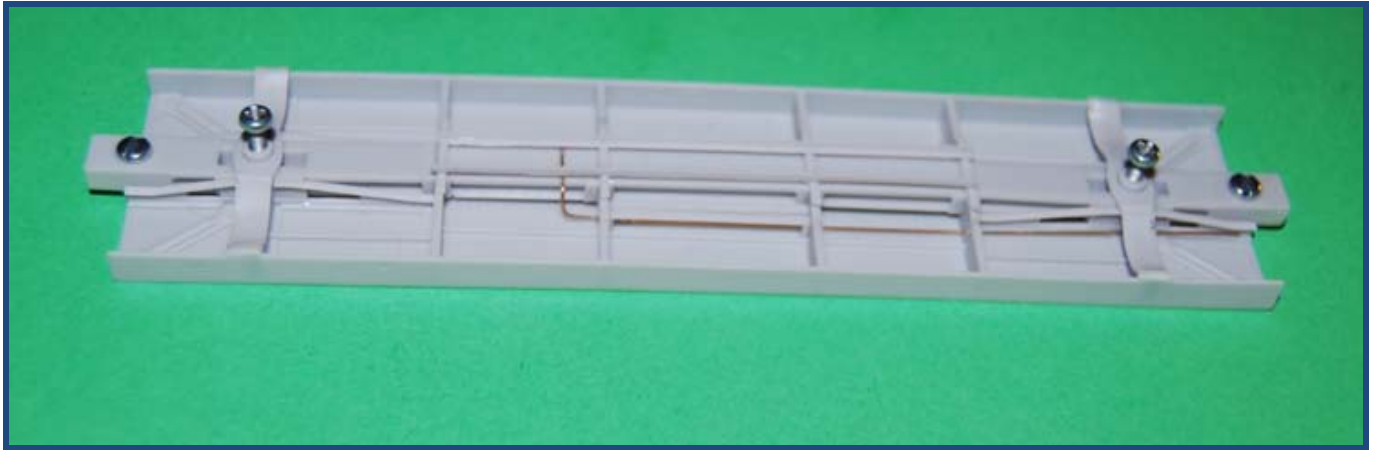
1. Underframe

The first step will be to glue the four long rectangles (two on each end) on each side of the center sill at the point where the holes for mounting the trucks are located. Next, attach the eight squares (four on each side) to the center sill. Test fit the center sill assembly into the floor, carefully sanding the crossbearers as necessary. Now would be a good

time to drill and tap the draft gear for 2-56 screws. Add the couplers (Kadee #153 are recommended) and attach the draft gear cover, secured with a 2-56 screw. If the threads of the screws extend beyond the draft gear, file them so that they are flush. Our attention now turns to the four triangular shaped pieces that frame the draft gear. Each will need to be individually fitted plus the body bolster opening will

need to be widened. Test fit the floor with the carbody; you'll want to do this before we start adding parts to the floor. With all of this accomplished, the center sill can be attached with CA. Refer to the instructions for placement. The next step is to locate and clean four of the 42" strips that have rivet detail. They are to be placed at the center on each of the four crossbearers, attached with CA. The two long angles can be added next. The outside edge of the angle lines up with the outside of the centersill. When looking at these two angles from one end, they form a

wide "U". For me, the most difficult part of this kit was forming the body bolster cover plates. Refer to the instructions for tips on how to form them – it actually does work! Finally, drill #61 holes through the body bolsters and crossbearers for the train line. See the instructions for the lines routing, then form the line using 0.015" phosphor-bronze wire. I accomplished this by separating the wire into two parts, with the joint under the place where brake cylinder will be located.



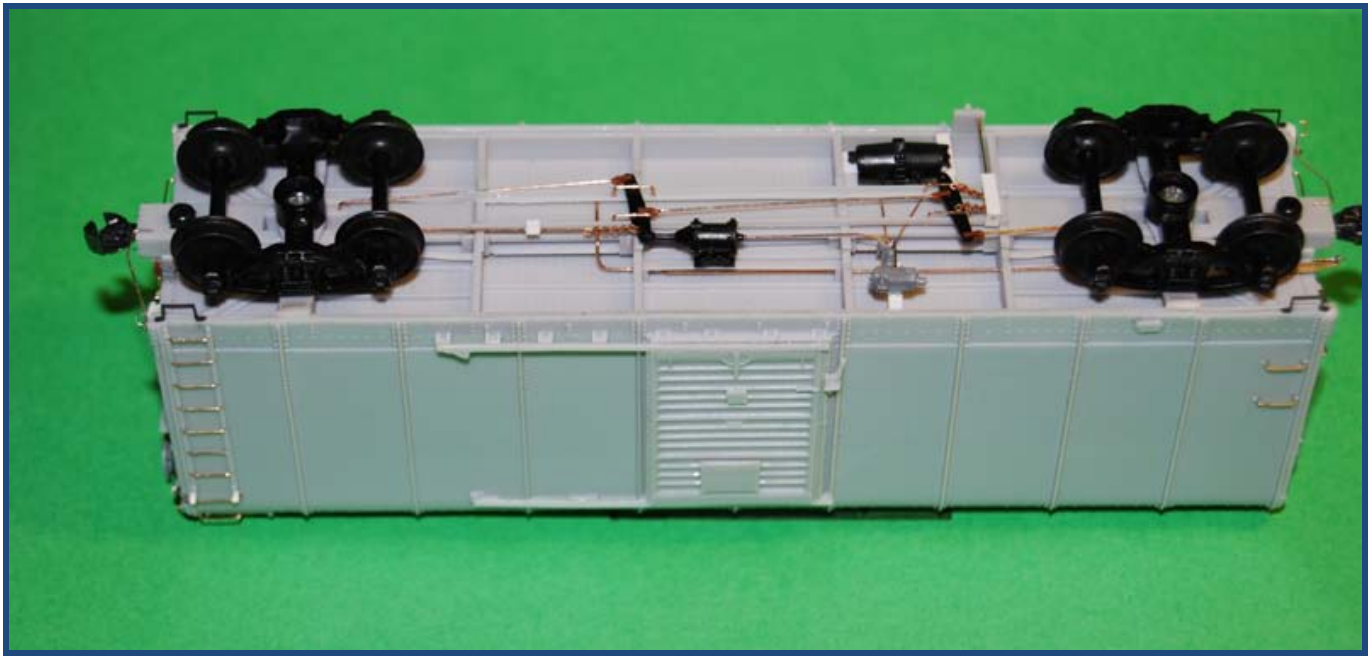
2. Brake System

Begin by adding the two angle iron brake cylinder supports. You'll see two locator tabs on two of the crossbearers. Next, we'll add the cylinder. I used one from a Cal-Scale AB set instead of the one provided. Prepare the cylinder by drilling a #79 hole for the air line and gluing the cylinder to the mounting bracket. Add the brake lever and attach the assembly to the two angles. See the instructions for the location. Now, for the dead lever – by now you have noticed that the kit provides two sets of Tichy AB Brake sets; the reason for this is that you'll need two long brake levers. Since I used the Cal-Scale AB set, you could match the brake lever from the Cal-Scale set with a piece of strip styrene or, as I did, use an additional long lever from the Cal-Scale Brake Lever set. You may choose to use the Tichy levers. With the levers in place, install the hangers. These are nothing more than 18" grab irons and are used to support the levers. We will now add the air reservoir (Cal-Scale) and control valve (Tichy). Here, the first step is to drill the parts for the air lines with a #79 drill bit. We will now fabricate the supports using 1"

x 6" strip styrene. With the appliances in place, connect them using 0.010" phosphor bronze wire. Refer to the instructions for air pipe routing.

Our attention now turns to the brake rigging. Here, I used 0.0125" phosphor bronze wire and Tichy turnbuckles (cut in half). Again, refer to the instructions for their placement. Don't forget the rod, including the chain, running from the brake cylinder to the "B" end. Support it with a piece of 1" x 6" styrene strip.

At this time, we'll add weight to the floor. I used the A-Line self adhesive weights, ½ oz, above each body bolster. Test fit the floor into the body, and when satisfied, CA the floor in place. You can now finish the brake system by adding the Tatum Slack Adjuster. Install the trucks; here I used the Accurail Bettendorf frames with Kadee wheels. You will need to file the mounting hole in the truck bolster to fit the kingpin.



3. Draft Gear

The rails for the Durycar Underframe are represented by a pair of 1" x 3" styrene strips atop the draft gear box. These are cut to a length of approximately nine inches and are capped by another length, six inches, between the body and the draft gear box. See the instructions for photos.

4. Body Detailing

Side Sill Steps – The kit includes Tichy Side Sill Steps which were longer than what I would have liked. I used the Tichy #3040 steps which were somewhat shorter. You could have also used Detail Associates #6417. If using the Tichy parts, drill a pair of #74 holes in each corner to receive the steps.

Roof – To insure a smooth and flat surface, run a one inch flat file along the roof walk supports. Next, score the seams between the roof walk and the laterals. Gently bend the laterals being careful not to separate them from the roofwalk. Center the roof walk and secure with CA. Drill the holes in the laterals for the corner grab iron with a #79 drill, form the corner grabs, and secure with CA. Finally, form the two corner grabs from 0.010" phosphor bronze wire and secure with CA. We'll add the roof walk supports next. Cut to length two pieces of 1" x 3" styrene strip to the width of the roofwalk. Using CA, attach one strip at each end to the underside of the

roofwalk. Next, cut four pieces of 1" x 2" styrene strip to represent the diagonal roofwalk supports and secure with CA to the carbody and styrene solvent to the 1" x 3" styrene strip under the roofwalk.

Ladders – The second big challenge came with the ladders. I was concerned with the cast on stiles and how to apply the rungs. The instructions called for #78 holes to be drilled inside the stiles and 0.010" wire to be formed and inserted. Instead, I drilled #79 holes directly beneath the rivets into the stiles. This part is tedious, but worth the effort. I then formed the 0.010" wire to complete each rung. I might add that there are no commercial ladders available that are dimensionally correct; therefore, this method was the most practical. The two grab irons above each ladder were done in the same manner. A strip, cut to the width of the ladder stiles (approx. 2"), of 0.005" styrene will be added. Then, cut eight pieces of this 0.005" strip to a length of 8". This strip connects the top of each stile to the grab iron above it. Apply a small amount of CA to the stile just above the top rivet and attach the 2' x 8" strap. Press the strap just below the grab iron with your fingernail, then wrap the top of the strap around the grab. Secure with CA. This will give an effect of a steel strap used as a "hanger".



Grab irons – This step is pretty straight forward. We'll do the sides first – drill a pair of #79 holes directly under the rivets for each grab iron. Form the grab using 0.010" phosphor bronze wire and secure with CA. Our attention now turns to the end grab irons. You'll see a pair of brackets on each side of the draft gear at the bottom of each end. Drill a #79 hole on the inside of each bracket, then form the grab using 0.010" wire, and secure with CA. One grab remains – the one on the right of each end, about one foot above the bottom. This is added using the same techniques as the side grab irons. NOTE: The instructions show two additional grabs – one vertical on the right and one horizontal centered on each end. These two grabs were remnants on the 125 M-53s' that had been converted to C-16s. When they were converted back to freight service, the two grabs remained. They were NOT applied to the M-53A class. Do not add both the rivet strip (unique to the M-53A) and the additional two grabs (unique to the 125 M-53 boxcars converted to express car class C-16 and then back to M-53 class boxcars). Finally, if your car does not have these two grabs, shave off the rivets that are associated with them.

Doors – Add the upper and lower door tracks. See the instructions for their placement. Next, test fit the doors, and carefully sand the top and bottom to get a good fit. Secure with CA. With the doors in place, add the door handles, securing with CA. Now is a good time to add the tack and routing boards, referring to the instructions and photos for placement. Again, secure with CA.

Ends – First we'll add those parts common to both the "A" and "B" ends. You'll find four small tabs in the upper, right hand corner of each end; this is where the tack boards are located. Attach these tack boards with CA. And now, unique to the M-53A, the rivet strip. Refer to the instructions for its location. It will be added in segments. Trim each segment to fit and carefully position it to the end, then secure it with CA.

And now the "B" end will be detailed. First, add the retainer valve followed by the retained line made of 0.010" phosphor bronze wire. Attach with CA. Next add the brake step using CA. Then drill a #65 hole through the brake step, centered on the two pads above, for the rod and chain to pass through. The rod

and chain assembly is made using 0.0125" phosphor bronze wire and chain. A hook is bent at one end of the wire, which is then slid through the last link of the chain. The wire is then crimped around that link. The connection between rod and chain occurs at the brake step with the top of the chain extending to behind the brake wheel housing. I like to "hang" the chain by drilling a #79 hole, forming an "L" with 0.010" wire and inserting that "L" through the top chain link into the hole, securing the assembly with CA. At the bottom of the carbody, add the fulcrum (from the Tichy AB set) in line with the hole in the brake step. Trim the rod so that it is just above the fulcrum and connect them using a Tichy turnbuckle, cut in half. Finally, add the brake wheel and housing.

Final details – For the cut levers, I drilled a #79 hole into the ends and inserted a lift ring. Next, I inserted a Detail Associates cut lever through the lift ring and glued it to the bottom of the draft gear cover. Some bending of the cut lever will be needed to allow for the extended draft gear box. Secure with CA. The air hoses will complete the construction phase of this kit. Here, I used a brass casting of the air hose hanger made by Precision Scale. Prepare it by first drilling a #79 hole where the air line will pass through, soldering a short length of 0.0125" wire, and trimming the wire so that just a short amount of wire extends beyond the hanger. Next, mount the hanger by drilling a #71 hole into the bottom of the end and inserting the hanger. Secure with CA. The air hoses I use come from Kadec and are prepared by first cutting the square stem and then drilling a #79 hole into the casting. The hose can then be slipped into

that stub coming from the bracket – but hold off gluing it until all painting and decaling is finished.

Painting

The kit's instructions suggest Floquil Polly S "Special Red". Instead, I opted for Scalecoat II "Oxide Red" which has become my standard for B&O boxcars. Follow the manufacturers' instructions and allow adequate time to dry. When you are finished painting the red, follow up by painting the underframe black. Here, I used Scalecoat II "Loco Black". With painting complete, apply decals. These have an extremely thin film and demand the utmost care. Finish with Testors Dullcoat and weather to suit.

Epilog

When I initially opened this kit, the first thing that struck me were the molded on ladder stiles, which I perceived as a minus. When I discussed this with Jim King of Smoky Mountain Model Works, he said that if he were to do the kit over again, he would have molded "dimples" into the stiles instead of rivets. I liked his idea and drilled into the stiles instead of inside them and then formed the rungs. My point is that you are building this for your own satisfaction – the kit instructions serve as a guide, not hard and fast rules. You need to bring your own modeling skills and preferences to the workbench. If there is a step that you don't feel comfortable with, or you feel as though you have a better way, use your own techniques. At the same time – be open to new techniques – it will make you a better modeler. Oh, and back to the stiles – they no longer bother me!





Bill of Materials

Walthers' Stock Number – Manufacturer - Part Description

| | |
|-----------|--|
| 116-13000 | A-Line #13000 Lead Weights |
| 112-100 | Accurail Bettendorf Truck Sideframes |
| 190-283 | Bowser (Cal-Scale) AB Brake Set |
| 293-1101 | Creative Model Associates 0.010" Phosphor Bronze Wire |
| 293-1106 | Creative Model Associates 0.0125" Phosphor Bronze Wire |
| 293-1102 | Creative Model Associates 0.015" Phosphor Bronze Wire |
| 229-6215 | Detail Associates Cut Levers |
| 269-8102 | Evergreen 1" x 2" Strip Styrene |
| 269-8103 | Evergreen 1" x 3" Strip Styrene |
| 269-8106 | Evergreen 1" x 6" Strip Styrene |
| 269-8206 | Evergreen 2" x 6" Strip Styrene |
| 269-9009 | Evergreen 0.005" Sheet Styrene |
| 380-153 | Kadee #153 Scale Couplers Whisker / Short Shank |
| 380-438 | Kadee Air Hoses |
| 380-520 | Kadee 33" Wheels |
| 585-39156 | Precision Scale Air Hose Brackets |
| 640-20022 | Scalecoat II Oxide Red |
| 640-20012 | Scalecoat II Loco Black |
| 293-3040 | Tichy Freight car Steps |
| 293-8021 | Tichy Styrene Turnbuckles |

MODELING CONCRETE TUNNEL PORTALS ON THE B&O

BY THOMAS ECKHARDT

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



Introduction

Modelers like to focus on prototypical engines, rolling stock, and select structures, such as stations towers, and signals to give our layouts the appearance of our favorite prototype. I would like to present another easy and rewarding project to enhance the B&O appearance of your miniature empire. The B&O had a distinct design for tunnel portals and when modeled this enhances the B&O character of a layout. For the expert modeler, the company store has detailed diagrams in the two volumes on Tunnel Diagrams on B&O Railroad (stock numbers 72001 and 72002) that are helpful in the faithful replication of a particular prototype.

The tunnels I have chosen for this project are based on west portal of the Sand Patch tunnel. This type of concrete tunnel can also be found in various places, including tunnels on the Magnolia Cutoff (Carothers and Randolph tunnels) or at Harpers Ferry. Several portals are inscribed with the tunnel name and some with year of construction as well. Interestingly, the Sand Patch west portal is not named, in contrast to its eastern counterpart. It appears that in some cases, the B&O upgraded some brick lined portals with a concrete structure (maybe for increased clearance), such as the east portal of the Sand Patch tunnel. The ornamental concrete

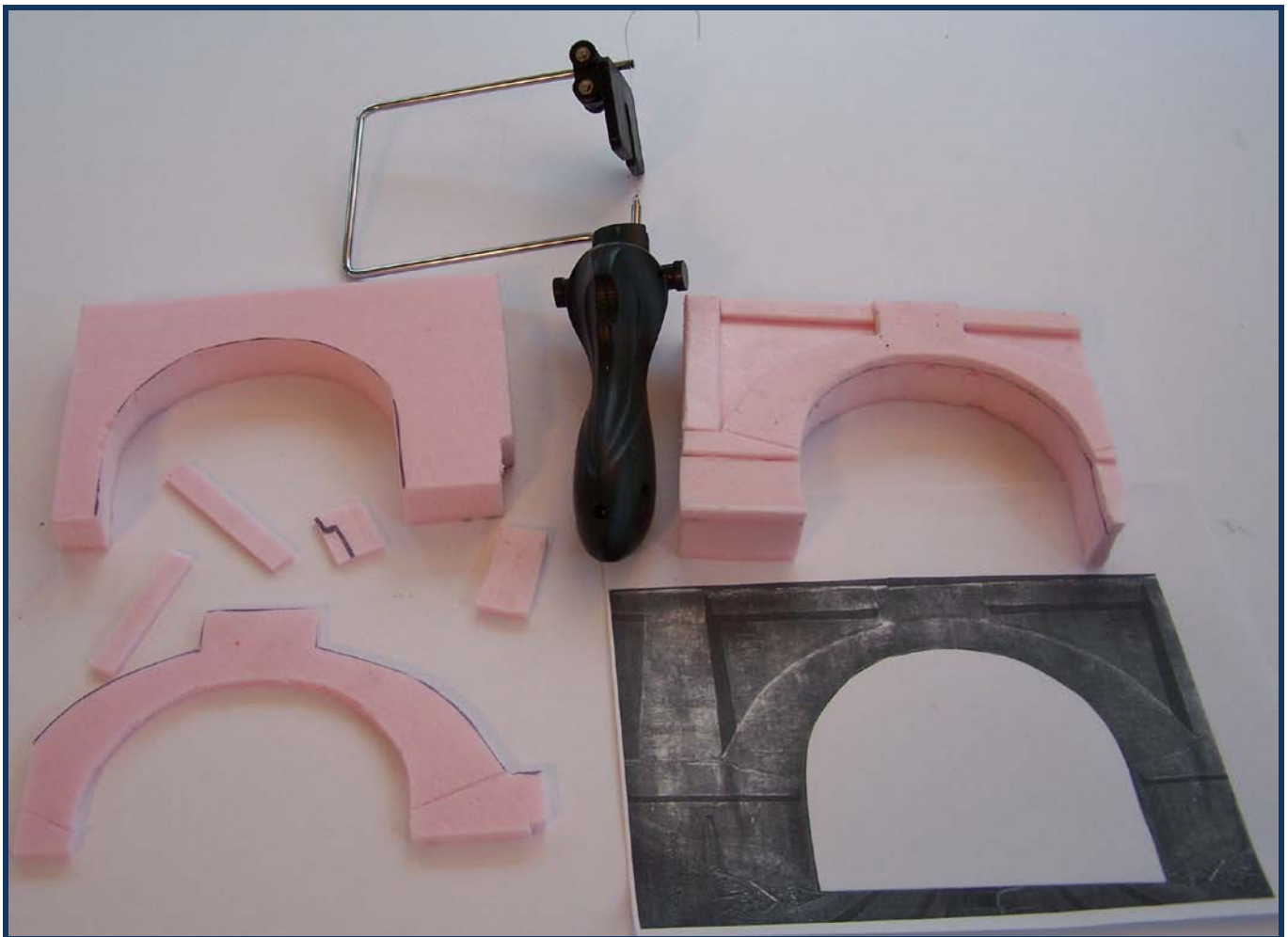
relief on some tunnels has been exposed to the elements and engine exhaust and is noticeably corroded, in other cases the relief is crisp and sharp (such as the Harpers Ferry tunnel I visited at the last mini-convention in September 2008). For modeling, exact prototype photos (from the appropriate time period) are always very helpful.

Construction

For my project, I started out with a picture from the internet that showed sufficient detail and is representative of a concrete B&O portal that has been exposed to the elements for some time. As the prototype tunnel is asymmetrical in its layout with the left side butting against a rock cliff, I created a symmetrical template by using a mirror image of the right side instead. I printed an approximate 1:1 copy in HO scale to serve as

template. Because the tunnels on my layout are sometimes on curves, I increased the tunnel opening slightly to be able to accommodate the front overhang of articulated steam engines. At times the track spacing on the layout is wider than on the prototype, necessitating a slightly larger opening. On my layout, the younger generation occasionally likes to run modern double stack trains, so appropriate clearance (at least for one track) has to be accommodated. With a suitable template in hand it is time to proceed to the next step of the project.

I like to use pink foam insulation, available from home centers for my various building projects, it is easy to process, paint, and is inexpensive. For this tunnel portal project I used 1" insulation and to work it, a Woodland Scenics' foam cutter.



The portal is cut out using the template, and the various ornamental and supportive elements are

cut from approximately 1/4" thick foam pieces. At this point the cuts don't have to be perfect. The

pieces are glued together using a non-solvent compound (such as Liquid Nails Project Construction Adhesive, make sure the label indicates it is safe for foam). After everything has dried and is bonded solidly, the tunnel

opening is smoothed with a file and sand paper, gaps between the tunnel opening and the ornaments are filled with the adhesive, and sanded smooth



Before getting too much into detailing, it's a good time to check all the necessary clearances on location with your favored oversized loads and engines. This short tunnel happens to be for a rather tight 36" radius curve. I use aluminum

foil painted black inside to simulate the tunnel walls and stabilized it with a coat of expandable foam on top, for longer tunnels I prefer interior access for troubleshooting.



This is also a good time to distress the appearance of the concrete, if desired. For example, cracked concrete can be simulated by drawing the lines under pressure with a technical pencil. Chipped concrete can be simulated by carefully applying a small amount of solvent with a brush (I use Ambroid “ProWeld” or “Tenax”). This can be repeated until the desired corrosion effect has been achieved.

The next steps are painting and weathering. Sometimes I start out with an application of gesso (used to prepare canvases for painting) that simulates nicely the slightly uneven concrete surfaces, but this step can be omitted. For the basic concrete color I use PollyScale “Aged Concrete”. I like to apply this with a foam pad rather than a brush, to avoid the appearance of brush strokes. Next I use a thin coat of artist oil paint (such as “burnt umber” or “burnt Siena”).



Again a use a foam pad and rub the paint in so only a slight change in shading is obtained. If too much paint is applied, use a fresh piece of foam to tone the oil paint down. I carefully press the paint into the corners and crevices. At this stage, powdered chalk can be used to provide

further weathering nuances, as it sticks well to the oil paint. Lastly, exhaust residue is painted on (I again use oil paint and a foam piece) and if

desired, limestone residues from dripping water. Once the desired effects have been achieved, it is time to set the portal up on the layout.



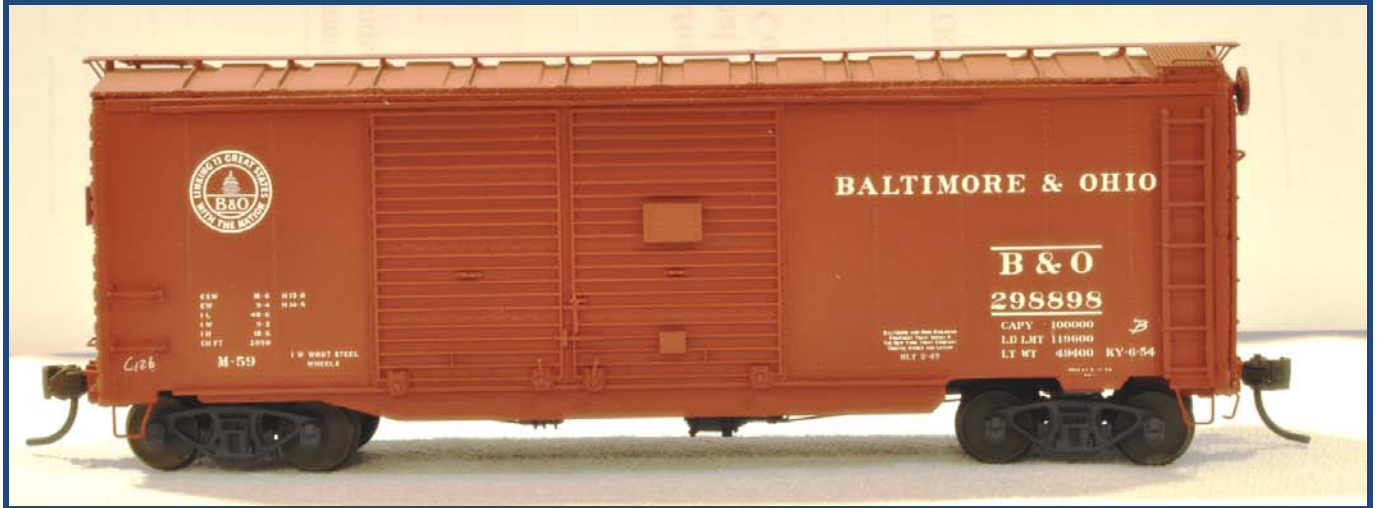
For retaining walls on the side I use the same techniques as for the tunnel portal. The simulated concrete surface is formed with a foam wire cutter. I find pink insulation to be

inexpensive, easy and fast to work with, and use it for other projects on my layout such as stone retaining walls or a machine shop made out of field stones.

2009 ANNUAL CONVENTION MODEL CONTEST

PHOTOS BY: JOHN TEICHMOELLER AND BRUCE ELLIOTT

The 2009 convention saw a large display of excellent models and we are again indebted to John Teichmoeller and Bruce Elliott for taking the considerable time needed to photograph all of the entries.



HO Scale M-59 by Bob Chapman. Sunshine Models kit.



HO Scale Point of Rocks Section House. Scratchbuilt by Bruce Elliott.



HO Scale P-25a Flat Car by Bruce Elliott.



HO Scale W-121 Water Tank. Kitbashed by Bruce Elliott.



HO Scale Ex-Ohio & Mississippi Class I Caboose by Bob Chapman. Athearn scratchbash.



HO Scale M-55c, #466054 by Bob Chapman. Sunshine Models kit.



HO Scale M-27f #382455 by Bob Chapman. Red Caboose scratchbash.



HO Scale M-15k #370813 by Bob Chapman. Sunshine Models kit.



HO Scale M-15h #82943 by Bob Chapman. Westerfield kit.



Class D-14aa Coffee Shoppe-Lounge-Dormitory-Baggage #1302 by Bob Chapman. Rivarossi Kitbash.



Class D-14aa Coffee Shoppe-Lounge-Dormitory-Baggage #1302 by Bob Chapman. Rivarossi Kitbash. (Opposite Side)



HO Scale DP-3 (E-6) Diesel #62 by Bob Chapman. Oriental Limited model. Leading The Diplomat in order.



HO Scale DP-3 (E-6) Diesel #62 by Bob Chapman. Oriental Limited model. (Opposite Side)



HO Scale DP-6 (E-8) #96. Model by Bob Chapman.



HO Scale DP-6 (E-8) #96. Model by Bob Chapman. (Opposite Side)



HO Scale Class B-21 Baggage Car #680 -- NKP Car Company Model. Built and superdetailed by Bob Chapman



HO Scale Class B-21 Baggage Car #680 -- NKP Car Company Model. Built and superdetailed by Bob Chapman. (Opposite Side)



HO Scale Class D-14ab Baggage-Dorm #1235 -- NKP Car Company Model. Built and superdetailed by Bob Chapman.



HO Scale Class D-14ab Baggage-Dorm #1235 -- NKP Car Company Model. Built and superdetailed by Bob Chapman. (Opposite Side)



HO Scale Class A-18eb Coach #3543 by Bob Chapman. Walther's Kitbash.



HO Scale Class A-18eb Coach #3543 by Bob Chapman. Walther's Kitbash. (Opposite Side)



HO Scale Class A-18cd Coach #3557 by Bob Chapman. Walther's Kitbash.



HO Scale Class A-18cd Coach #3557 by Bob Chapman. Walther's Kitbash. (Opposite Side)



HO Scale Class A-18ec Coach #3690 -- NKP Car Company Model. Built and superdetailed by Bob Chapman.



HO Scale Class A-18ec Coach #3690 -- NKP Car Company Model. Built and superdetailed by Bob Chapman. (Opposite Side)



HO Scale Class F-4ce Dining Car by Bob Chapman. Superdetailed NKP Car Company Model.



HO Scale Class F-4ce Dining Car by Bob Chapman. Superdetailed NKP Car Company Model. (Opposite Side)



HO Scale Class S-5a 8-Section 1-Drawing Room 3-Double Bedroom Sleeper *Lantern Tower* by Bob Chapman. NKP Car Company Model



HO Scale Class S-5a 8-Section 1-Drawing Room 3-Double Bedroom Sleeper *Lantern Tower* by Bob Chapman. NKP Car Company Model (Opposite Side)



HO Scale Class S-2 14-Roomette 4-Double Bedroom Sleeper *Cacapon* by Bob Chapman. Superdetailed Brass Car Sides Model.



HO Scale Class S-2 14-Roomette 4-Double Bedroom Sleeper *Cacapon* by Bob Chapman. Superdetailed Brass Car Sides Model. (Opposite Side)



HO Scale Class S-14b 12-Section 1-Drawing Room Sleeper *Green Spring* by Bob Chapman. Branchline Kitbash.



HO Scale Class S-9b 8-Section Lounge *Cumberland Club* by Bob Chapman. Great Brass Fleet Model.



HO Scale Class S-9b 8-Section Lounge *Cumberland Club* by Bob Chapman. Great Brass Fleet Model. (Opposite Side)



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